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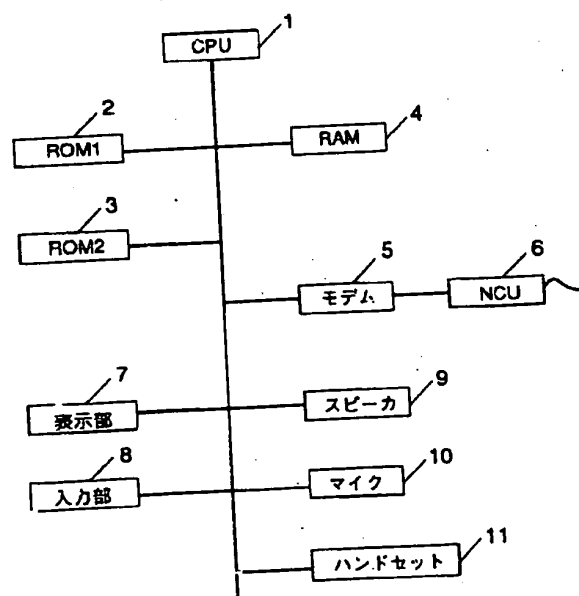
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(54) 【発明の名称】 電話端末装置および電話交換機

(57) 【要約】

【課題】 一般の電話回線とインターネットから通話料金の安い回線を選択し通話を行うことができ、ユーザが簡単に操作するだけでインターネットを利用した通話ができる電話端末装置を提供することを目的とする。

【解決手段】 モデムを内蔵し、まず一般の電話回線を使用して着呼側から通話料金データを受け取り、一般の電話回線のみを使用した場合とインターネットを使用した場合との通話料金の比較を行うことにより、特に長距離電話等ではインターネットを利用してより安い料金で通話を行うことができる。また、回線の選択および接続を電話機が自動的に行い、回線の接続が完了した後に呼び出し音を出力することによってユーザは特別な操作をせずに従来の電話機と同じ様にインターネットを利用して通話を行うことができる。



が必要になる。また、インターネットを利用する場合、発呼側と着呼側が同時にインターネットに接続されていなければならない、発呼側と着呼側の両方で各々のユーザが端末を操作しなければならない、繁雑であるという問題点を有していた。

【0005】本発明は、一般の電話回線とインターネットから通話料の安い方を選択し、選んだほうの回線を使用し、自動的に相手側と接続する電話端末装置を提供することを目的とする。

【0006】

【課題を解決するための手段】この課題を解決するために本発明は、データ通信手段を有する電話端末装置であって、一般の電話回線のみを使用した場合の単位時間当たりの通話料と、インターネットを利用した場合の通話料を比較し、通話料の安い回線を選択しその回線を使用して接続するように制御する構成とした。また、回線を接続した後に呼び出し音を出力してユーザに着呼および接続完了の通知を行うように制御する構成とした。

【0007】これにより、安い通話料で長距離電話をかけることができ、しかもユーザは面倒な手順をふまずに普通に電話をかけるようにしてインターネットを利用して電話をかけることができる。

【0008】

【発明の実施の形態】本発明の請求項1に記載の発明は、データ通信手段を有する電話端末装置であって、一般の電話回線とインターネットから通信料金の安い回線を選択して発信する電話端末装置であり、自動的に安い回線を使用することができるという作用を有する。

【0009】本発明の請求項2～6に記載の発明は、所定の電話端末に対応するダイヤル情報を入力する入力手段と、電話回線と接続するインターフェース手段と、前記インターフェース手段に接続されデータ通信を行うデータ通信手段と、前記入力部に入力されたダイヤル情報に対して前記インターフェース部を介して発信して前記ダイヤル情報に対応する所定の電話端末と接続し、前記所定の電話端末がインターネットへのアクセスが可能であることを確認した後、一旦電話回線を切断し、前記データ通信手段を用いてインターネットへ接続して前記所定の電話端末に再接続するように制御する制御手段とを有する電話端末装置であり、ユーザはインターネットを使用するために格別の操作をすることなく自動的にインターネットを用いて発呼することができるという作用を有する。

【0010】本発明の請求項7～11に記載の発明は、電話回線と接続するインターフェース手段と、前記インターフェース手段に接続されデータ通信を行うデータ通信手段と、着呼時に前記インターフェース手段を介して発呼側電話機と接続し、前記発呼側電話機からインターネットへのアクセス要求を受信した場合に、一旦電話回線を切断し、前記データ通信手段を用いてインターネッ

トへ接続して前記発呼側電話機に再接続するように制御する制御手段とを有する電話端末装置であり、ユーザはインターネットを使用するために格別の操作をすることなく自動的にインターネットを用いて着呼することができる。

【0011】本発明の請求項12に記載の発明は、データ通信手段を有する電話交換機であって、発呼側のダイヤル情報に基づき、一般の電話回線とインターネットから通信料金の安い回線を選択して発信することの特徴とする電話交換機であり、自動的に安い回線を使用することができるという作用を有する。

【0012】本発明の請求項13に記載の発明は、電話端末と接続され、前記電話端末からのダイヤル情報が入力される電話インターフェース手段と、電話回線と接続する回線インターフェース手段と、前記回線インターフェース手段に接続されデータ通信を行うデータ通信手段と、前記電話インターフェース手段に入力されたダイヤル情報に対して前記回線インターフェース部を介して発信して前記ダイヤル情報に対応する他の電話端末と接続し、前記他の電話端末がインターネットへのアクセスが可能であることを確認した後、一旦電話回線を切断し、前記データ通信手段を用いてインターネットへ接続して前記他の電話端末に再接続するように制御する制御手段とを有する事を特徴とする電話交換機であり、ユーザはインターネットを使用するために格別の操作をすることなく自動的にインターネットを用いて発呼することができるという作用を有する。

【0013】本発明の請求項14に記載の発明は、電話回線と接続するインターフェース手段と、前記インターフェース手段に接続されデータ通信を行うデータ通信手段と、着呼時に前記インターフェース手段を介して発呼側電話機と接続し、前記発呼側電話機からインターネットへのアクセス要求を受信した場合に、一旦電話回線を切断し、前記データ通信手段を用いてインターネットへ接続して前記発呼側電話機に再接続するとともに着呼側電話機に接続するように制御する制御手段とを有する事を特徴とする電話交換機であり、ユーザはインターネットを使用するために格別の操作をすることなく自動的にインターネットを用いて着呼することができる。

【0014】以下、本発明の実施の形態について図1から図10を用いて説明する。

(実施の形態1) 以下、本発明の実施の形態1について、図面を参照しながら説明する。

【0015】図1は本発明の実施の形態1におけるインターネット付き電話端末装置のハードウェア構成図である。

【0016】図1において、1は電話機全体の動作を制御する中央演算処理装置(CPU)である。2はCPU1が実行する動作プログラムを格納したリード・オンリー・メモリ(ROM)である。3は一般回線の料金デー

る(ステップ41)。

【0025】図5および図6は本発明の実施の形態1におけるインターネット付き電話機のインターネットを使用する旨の通知時における動作フローチャートであり、CPU1がROM2に記憶されている動作プログラムを実行する手順について示したものである。

【0026】図5において、発呼時および着呼時にまず図2、図3、図4に示したような手順で回線を選択する(ステップ51)。一般の電話回線が選択された場合(ステップ52)、LEDは点灯させずに通話を開始する(ステップ60)。インターネットの使用が選択された場合(ステップ52)、LEDを点灯させて(ステップ53)ユーザにインターネットを利用し通話を行う旨を通知する。その後一度回線を切断して(ステップ54)プロバイダの電話番号を送出してインターネットに接続する(ステップ55)。相手とつながったら通話を開始し(ステップ56)、通話が終了しオン・フックを検出したら(ステップ57)LEDを消灯し(ステップ58)回線を切断する。

【0027】図6において、発呼時および着呼時にまず図2、図3、図4に示したような手順で回線を選択する(ステップ61)。一般の電話回線が選択された場合(ステップ62)、そのまま通話を開始する(ステップ69)。インターネットの使用が選択された場合(ステップ62)、受話器を通して「インターネットに接続し直します。」などといったようなメッセージによってインターネットを利用する旨をユーザに通知する(ステップ63)。その後一度回線を切断して(ステップ64)プロバイダの電話番号を送出してインターネットに接続する(ステップ65)。相手とつながったら通話を開始し(ステップ66)、通話が終了しオン・フックを検出したら(ステップ67)回線を切断する(ステップ68)。

【0028】図7は本発明の実施の形態1におけるインターネット付き電話機の呼び出し音出力時における動作フローチャートであり、CPU1がROM2に記憶されている動作プログラムを実行する手順について示したものである。

【0029】図7において、発呼時および着呼時にまず図2、図3、図4に示したような手順で回線を選択する(ステップ71)。一般の電話回線が選択された場合(ステップ72)、音声モードに切り替えて(ステップ79)着呼側の呼び出し音を出力し(ステップ79)、着呼側のユーザが応答したら通話を開始する(ステップ80)。インターネットの使用が選択された場合(ステップ72)、一度回線を切断して(ステップ73)プロバイダの電話番号を送出してインターネットにアクセスする(ステップ74)。相手との接続が完了したら(ステップ75)受話器がオン・フックであるか否か確認して(ステップ76)、オフ・フックであれば通話を開始

する(ステップ81)。オン・フックであれば呼び出し音を出力し(ステップ77)着呼または接続完了をユーザに通知する。着呼側のユーザが応答したら通話を開始する(ステップ78)。

【0030】なお、本発明の実施の形態1として電話機で実現した例を記載しているが、本発明は電話機に限定されるものでなく、例えば一般の電話機に接続されるアダプタのような形態で本発明の機能を実現することができる。

(実施の形態2)以下、本発明の実施の形態2について、図面を参照しながら説明する。図8は本発明の実施の形態2における電話交換器のハードウェア構成図である。図8において、21は電話交換器全体の動作を制御する中央演算処理装置(CPU)である。22はCPU1が実行する動作プログラムを格納したリード・オンリー・メモリ(ROM)である。23は一般回線の料金データを格納したリード・オンリー・メモリ(ROM)である。24はデータを一時的に格納するためのランダム・アクセス・メモリ(RAM)である。25は有線の通信回線を通してデータの送受信を行うモデムであり、26は通信回線とのインターフェース回路(NCU)である。27は電話機との電話インターフェース回路である。

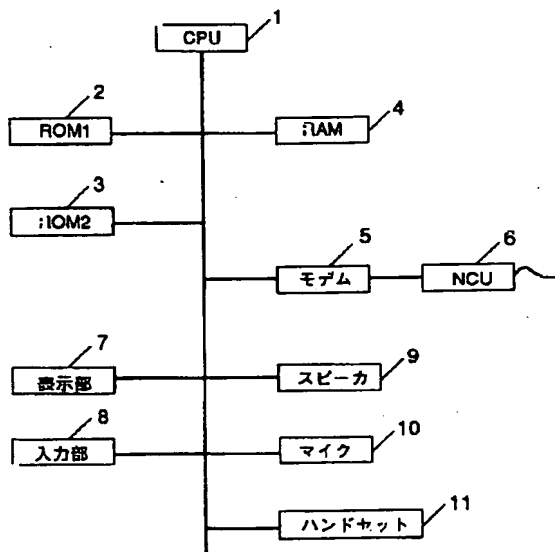
【0031】以上のように構成された電話交換器について、以下にその動作を説明する。図9は本発明の実施の形態2における電話交換器の発呼時におけるフローチャートであり、発呼時にCPU21がROM22に記憶されている動作プログラムを実行する手順について示したものである。

【0032】図9において、まず発信者は至急の場合および短時間(最少通話料金で通話できる時間)ですむ用件の場合は、電話機で相手側の電話番号をダイヤルする際に、電話番号に続いて「#」を入力する。交換器は電話インターフェース27に接続された電話機がオフフックし送出した電話番号を検出する(ステップ91)。このとき電話番号に続いて「#」が送出されていないか確認する(ステップ92)。

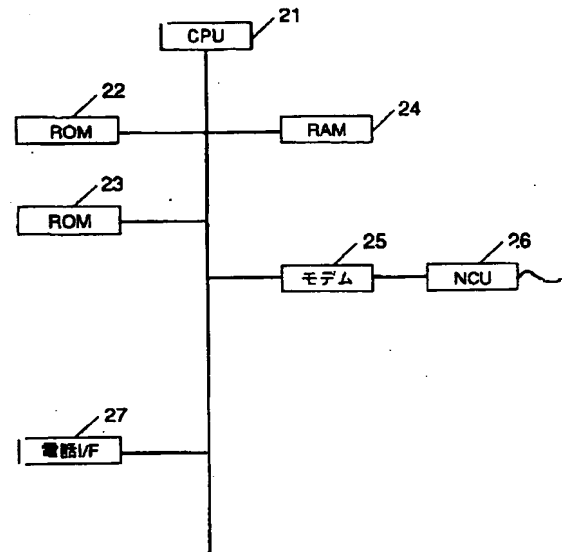
【0033】ステップ92において至急または短時間の用件であることを示す「#」を確認したら、電話機から送出された相手先の電話番号を送出し(ステップ93)、一般の電話回線を使用して接続する(ステップ94)。一方、「#」が付加されてなかった場合、相手先の電話番号を送出し(ステップ95)、一般の電話回線を使用してデータ通信モードで着呼側と接続する(ステップ96)。着呼側と接続されたら図2および前記して説明したように一般の電話回線のみを使用した場合とインターネットを使用した場合で、通話料が安い方を選択する(ステップ97)。回線選択ステップにおいて、一般の電話回線の使用が選択された場合は(ステップ98)音声モードに切り替える(ステップ99)。回線選

27 電話インターフェース

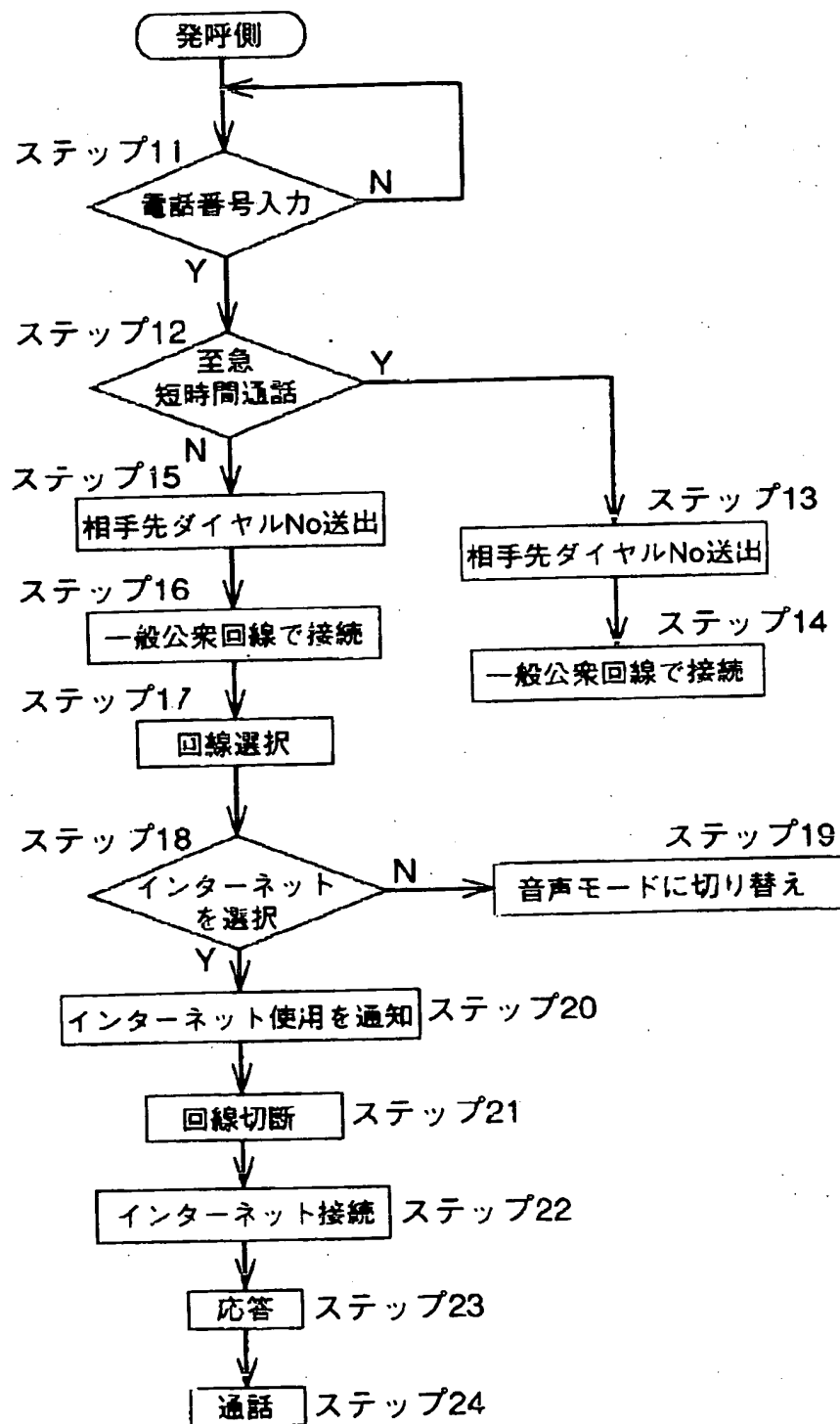
【図1】



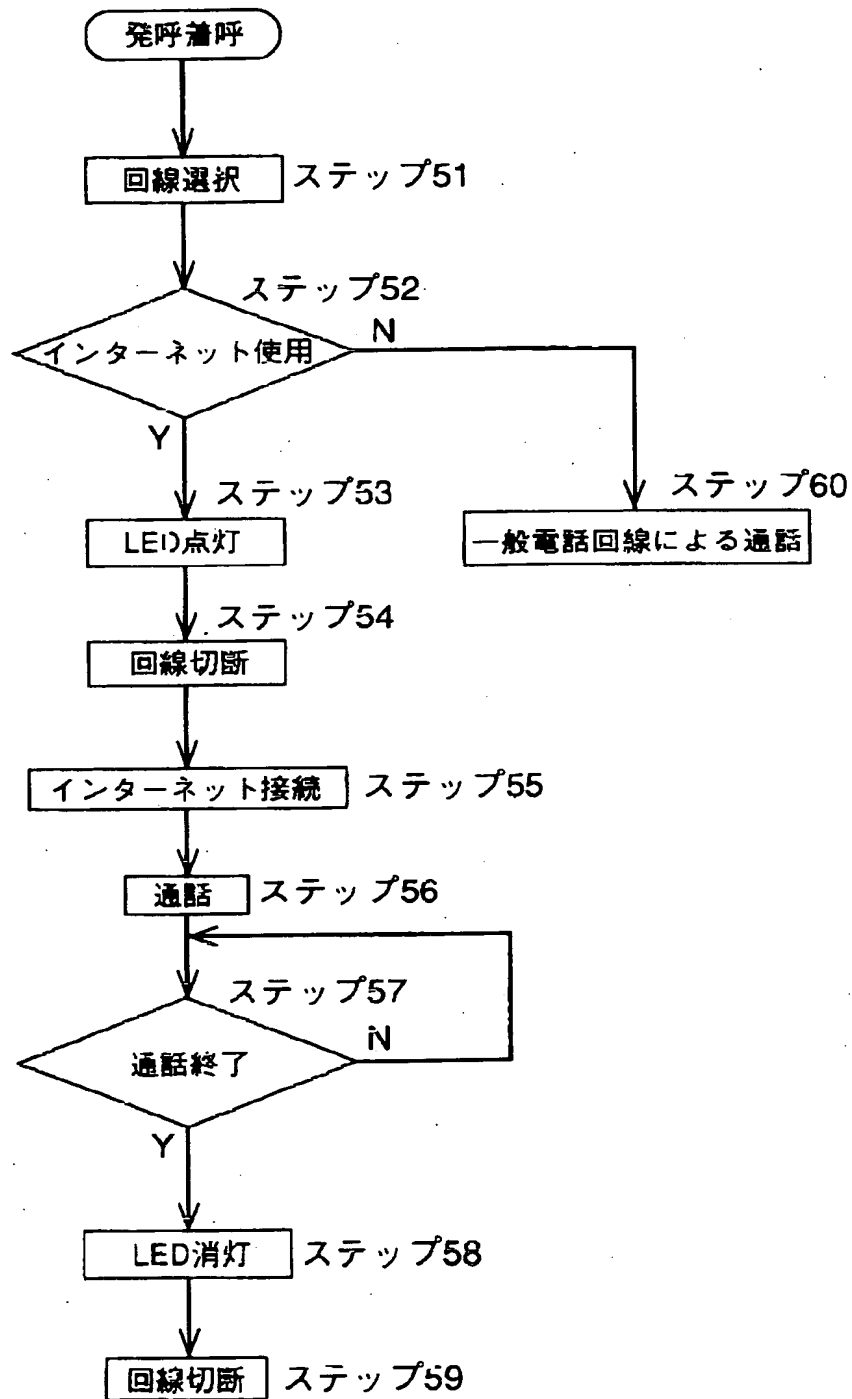
【図8】



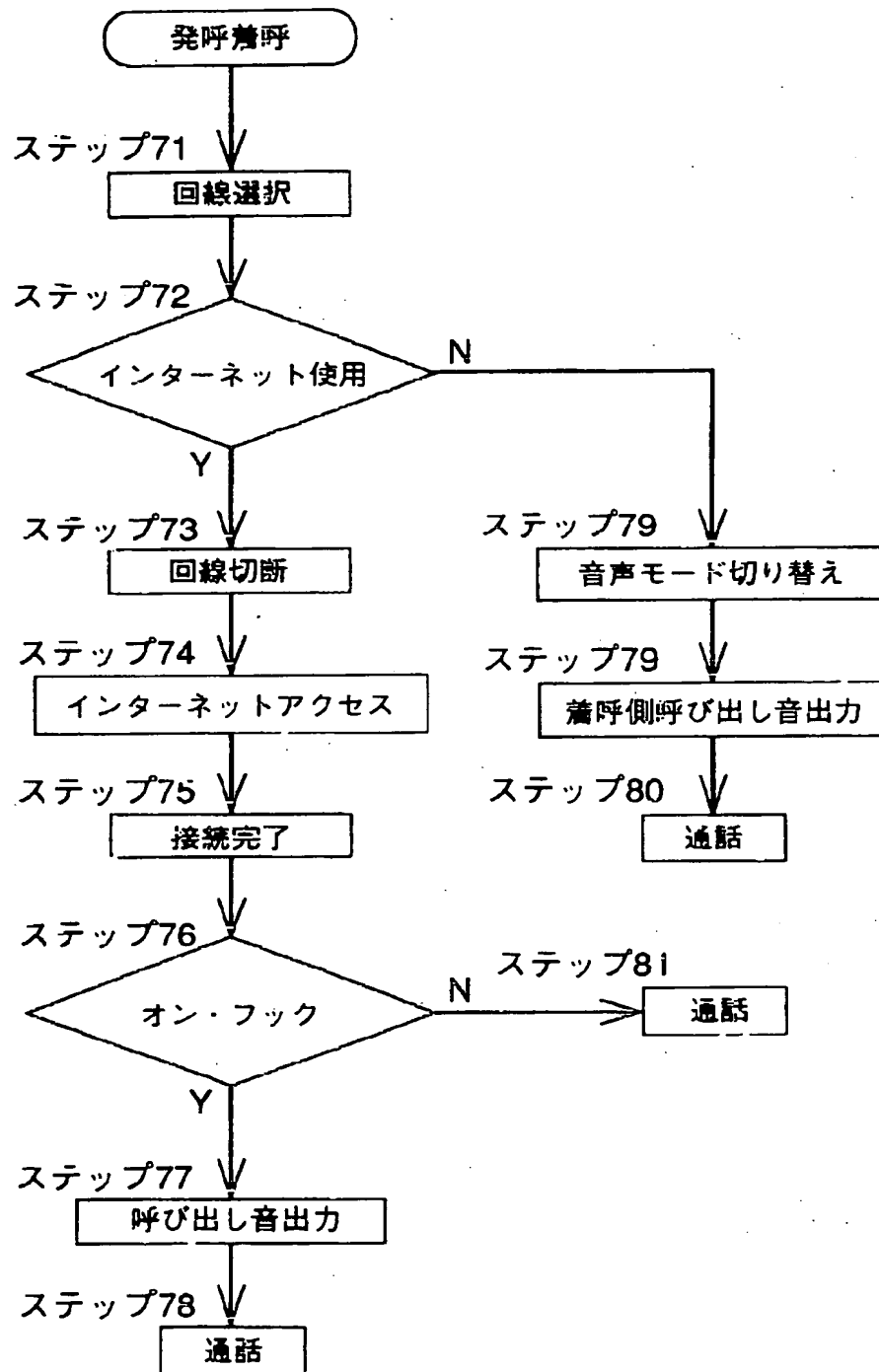
【図3】



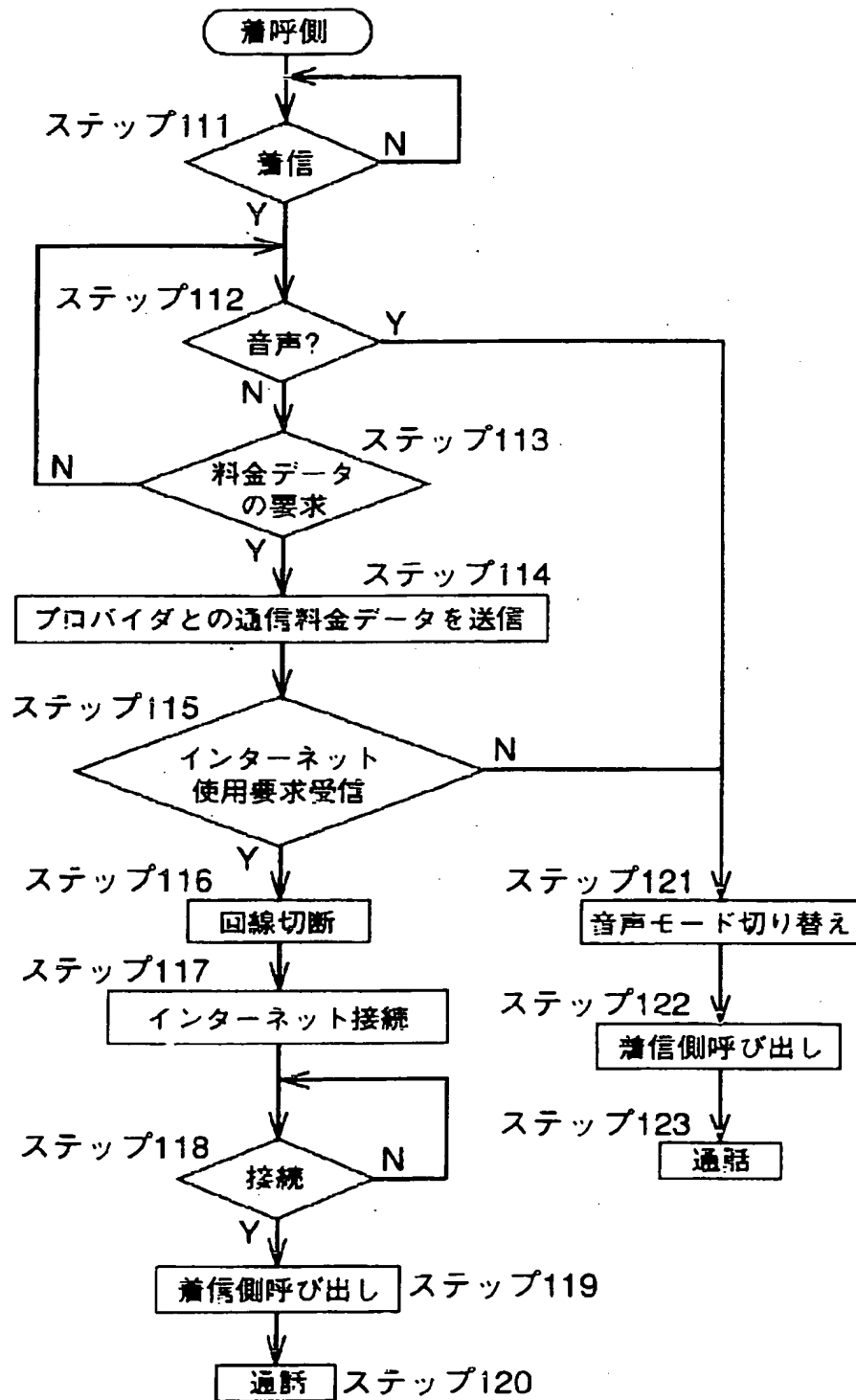
【図5】



【図7】



【図10】



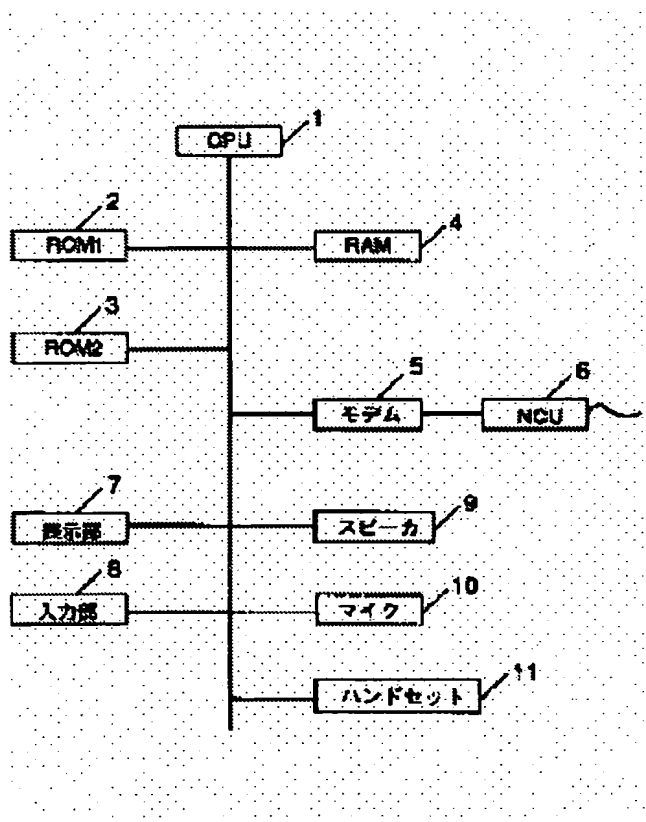
TELEPHONE TERMINAL AND TELEPHONE EXCHANGE

Patent number: JP11017826
Publication date: 1999-01-22
Inventor: MATSUO SHOJIRO
Applicant: MATSUSHITA ELECTRIC IND CO LTD
Classification:
 - international: H04M11/00; H04M1/26; H04M3/00; H04M3/42; H04M15/16
 - european:
Application number: JP19970163965 19970620
Priority number(s): JP19970163965 19970620

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Abstract of JP11017826

PROBLEM TO BE SOLVED: To provide a telephone terminal which makes it possible to select a line of an inexpensive call tariff from a general telephone line and an internet and to enable calling that uses the internet by a user's simple operation. **SOLUTION:** This terminal incorporates a modem 5, first receives call tariff data from the side of an incoming call by using a general telephone line and enables a call, especially an long distance call or the like, with an inexpensive call tariff by performing a comparison of call tariffs when only the general telephone line is used with those when an internet is used. Also, a user can use the internet and make a call as he does with a conventional telephone set without performing a special operation by a telephone set's automatically executing selection and connection of a line and outputting a call sound after the line connection is completed.



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CLAIMS

[Claim(s)]

[Claim 1] The telephone terminal unit which is a telephone terminal unit which has a data communication means, and is characterized by choosing and sending the cheap circuit of a communication link tariff from the general telephone line and the Internet.

[Claim 2] An input means to input the dial information corresponding to a predetermined telephone terminal, and an interface means to connect with the telephone line, A data communication means to connect with said interface means and to perform data communication, Send through said interface section to the dial information inputted into said input section, and it connects with the predetermined telephone terminal corresponding to said dial information. The telephone terminal unit characterized by having the control means controlled to once disconnect the telephone line, to access the Internet using said data communication means, and to re-connect with said predetermined telephone terminal after checking that access to the Internet is possible for said predetermined telephone terminal.

[Claim 3] The telephone terminal unit according to claim 2 characterized by what is reported when it has the 1st information means and re-connects with said predetermined telephone terminal.

[Claim 4] The telephone terminal unit according to claim 2 characterized by what it has the 2nd information means and is reported at the time of the Internet use.

[Claim 5] Said 2nd information means is a telephone terminal unit according to claim 4 which is LED and is characterized by turning on LED during the Internet use.

[Claim 6] Said 2nd information means is a telephone terminal unit according to claim 4 which is a loudspeaker and is characterized by reporting using it with voice at the time of the Internet use.

[Claim 7] The telephone terminal unit characterized by to have the control means which controls to once disconnect the telephone line, to access the Internet using said data-communication means, and to re-connect with said call-origination side telephone when it connects with call-origination side telephone through said interface means at an interface means connect with the telephone line, a data-communication means connect with said interface means and perform data communication, and the time of a call in and the access request from said call-origination side telephone to the Internet is received.

[Claim 8] The telephone terminal unit according to claim 7 characterized by what is reported when it has the 1st information means and re-connects with said call origination side telephone.

[Claim 9] The telephone terminal unit according to claim 7 characterized by what it has the 2nd information means and is reported at the time of the Internet use.

[Claim 10] Said 2nd information means is a telephone terminal unit according to claim 9 which is LED and is characterized by turning on LED during the Internet use.

[Claim 11] Said 2nd information means is a telephone terminal unit according to claim 9 which is a loudspeaker and is characterized by reporting using it with voice at the time of the Internet use.

[Claim 12] The telephone switchboard which is a telephone switchboard which has a data communication means, and is characterized by choosing and sending the cheap circuit of a communication link tariff from the general telephone line and the Internet based on the dial information by the side of call origination.

[Claim 13] A telephone interface means by which connect with a telephone terminal and the dial information from said telephone terminal is inputted, A circuit interface means to connect with the telephone line, and a data communication means to connect with said circuit interface means and to perform data communication, Send through said circuit interface section to the dial information inputted into said telephone interface means, and it connects with other telephone terminals corresponding to said dial information. said -- others -- after checking that access to the Internet is possible for a telephone terminal -- once -- the telephone line -- cutting -- said data communication means -- using -- the Internet -- connecting -- said -- others -- the telephone switchboard characterized by having the control means controlled to re-connect with a telephone terminal.

[Claim 14] An interface means to connect with the telephone line, and a data communication means to connect with said interface means and to perform data communication, It connects with call origination side telephone through said interface means at the time of a call in. When the access request from said call origination side telephone to the Internet is received The telephone switchboard characterized by having the control means controlled to connect with call-in side telephone while once disconnecting the telephone line, accessing the Internet using said data communication means and re-connecting with said call origination side telephone.

[Translation done.]

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the telephone terminal unit in which the message using the Internet is possible.

[0002]

[Description of the Prior Art] In recent years, the user of the Internet is increasing rapidly. Service which used the Internet in connection with it is also offered increasingly. The Internet is used and software whose message is possible with a partner with a personal computer is also coming out.

[0003] Although the general telephone line was used when talking to someone by telephone conventionally, the message became recently possible also by connecting a loudspeaker or headphone, and a microphone with a personal computer which was described above, and using the Internet.

[0004]

[Problem(s) to be Solved by the Invention] When you telephone like before using the general telephone line, for example, when it becomes messages of the long-distance section, such as an international call, phonecall charges also with a remarkable short time are needed. Moreover, when the Internet was used, the call origination and call-in side must be connected to coincidence at the Internet, each user had to operate the terminal by both by the side of call origination and a call in, and it had the trouble of being complicated.

[0005] The circuit of the way which chose the cheaper one of phonecall charges and was chosen is used for this invention from the general telephone line and the Internet, and it aims at offering the telephone terminal unit automatically connected with the other party.

[0006]

[Means for Solving the Problem] It considered as the configuration controlled for this invention to be a telephone terminal unit which has a data communication means, to compare the phonecall charges per unit time amount at the time of using only the general telephone line with the phonecall charges at the time of using the Internet, to choose the cheap circuit of phonecall charges in order to solve this technical problem, and to connect using that circuit. Moreover, it considered as the configuration controlled to call after connecting a circuit, to output a sound and to perform the notice of a call in and the completion of connection to a user.

[0007] A long-distance telephone can be made by cheap phonecall charges by this, and moreover, as a user telephones ordinarily, without completing a troublesome procedure, he can telephone using the Internet.

[0008]

[Embodiment of the Invention] Invention of this invention according to claim 1 is a telephone terminal unit which has a data communication means, is a telephone terminal unit which chooses and sends the cheap circuit of a communication link tariff from the general telephone line and the Internet, and has an operation that a cheap circuit can be used automatically.

[0009] An input means by which invention of this invention according to claim 2 to 6 inputs the dial

information corresponding to a predetermined telephone terminal, An interface means to connect with the telephone line, and a data communication means to connect with said interface means and to perform data communication, Send through said interface section to the dial information inputted into said input section, and it connects with the predetermined telephone terminal corresponding to said dial information. After checking that access to the Internet is possible for said predetermined telephone terminal, It is the telephone terminal unit which has the control means controlled to once disconnect the telephone line, to access the Internet using said data communication means, and to re-connect with said predetermined telephone terminal. A user has an operation that call origination can be automatically carried out using the Internet, without carrying out actuation according to rank, in order to use the Internet.

[0010] The interface means which invention of this invention according to claim 7 to 11 connects with the telephone line, A data communication means to connect with said interface means and to perform data communication, It connects with call origination side telephone through said interface means at the time of a call in. When the access request from said call origination side telephone to the Internet is received It is the telephone terminal unit which has the control means controlled to once disconnect the telephone line, to access the Internet using said data communication means, and to re-connect with said call origination side telephone. A user can do a call in using the Internet automatically, without carrying out actuation according to rank, in order to use the Internet.

[0011] Invention of this invention according to claim 12 is a telephone switchboard which has a data communication means, based on the dial information by the side of call origination, is a telephone switchboard characterized by choosing and sending the cheap circuit of a communication link tariff from the general telephone line and the Internet, and has an operation that a cheap circuit can be used automatically.

[0012] A telephone interface means by which invention of this invention according to claim 13 is connected with a telephone terminal, and the dial information from said telephone terminal is inputted, A circuit interface means to connect with the telephone line, a data communication means to connect with said circuit interface means and to perform data communication, Send through said circuit interface section to the dial information inputted into said telephone interface means, and it connects with other telephone terminals corresponding to said dial information. After checking that access to the Internet is possible for a telephone terminal besides the above, It is the telephone switchboard characterized by having the control means controlled to once disconnect the telephone line, to access the Internet using said data communication means, and to re-connect with a telephone terminal besides the above. A user has an operation that call origination can be automatically carried out using the Internet, without carrying out actuation according to rank, in order to use the Internet.

[0013] The interface means which invention of this invention according to claim 14 connects with the telephone line, A data communication means to connect with said interface means and to perform data communication, It connects with call origination side telephone through said interface means at the time of a call in. When the access request from said call origination side telephone to the Internet is received It is the telephone switchboard characterized by having the control means controlled to connect with call-in side telephone while once disconnecting the telephone line, accessing the Internet using said data communication means and re-connecting with said call origination side telephone. A user can do a call in using the Internet automatically, without carrying out actuation according to rank, in order to use the Internet.

[0014] Hereafter, the gestalt of operation of this invention is explained using drawing 10 from drawing 1.

(Gestalt 1 of operation) The gestalt 1 of operation of this invention is explained hereafter, referring to a drawing.

[0015] Drawing 1 is the hardware configuration Fig. of the telephone terminal unit with the Internet in the gestalt 1 of operation of this invention.

[0016] In drawing 1, 1 is arithmetic and program control (CPU) which controls actuation of the whole telephone. 2 is the read only memory (ROM) which stored the program of operation which CPU1

performs. 3 is the read only memory (ROM) which stored the account data of a general circuit. 4 is the random access memory (RAM) for storing data temporarily. 5 is a modem which transmits and receives data through the communication line of a cable, and 6 is an interface circuitry (NCU) with a communication line. 7 is a display equipped with the display screens, such as a liquid crystal display. 8 is the input section which inputs the input of a phase hand's number, and various kinds of directions. 9 is a loudspeaker for voice outputs and 10 is a microphone for voice input. 11 is the hand set of a telephone.

[0017] About the telephone with the Internet constituted as mentioned above, the actuation is explained below.

[0018] Drawing 2 is a flow chart at the time of circuit selection of the telephone with the Internet in the gestalt 1 of operation of this invention, and shows the procedure of performing the program of operation CPU1 is remembered to be by ROM2.

[0019] In the case of the business which ends for a short time (inside of the time amount of the minimum phonecall charges) when an addresser is urgent, push telephone is set up for the carbon button in the input section 8. Next, a phase hand's telephone number is inputted from the same input section 8.

[0020] CPU1 will connect a circuit with a partner in data communication mode first using the general telephone line, if a phase hand's telephone number is inputted (step 1) (step 2). It checks whether access to the Internet is possible by exchange of the data by the side of a call in (step 3), and when it is judged that access to the Internet cannot do a call-in side, the communicate mode is changed to voice mode and it talks over the telephone by the general telephone line (step 9). If it checks that access to the Internet is possible for a call-in side in step 3, the traffic alpha of unit time amount will be searched from the telephone number inputted first from the data in which it was stored by ROM3 (step 4). Next, the communication line expense beta per unit time amount with the provider A of the Internet beforehand inputted by the user is searched (step 5). The communication link tariff gamma data per unit time amount with Provider B come to hand a call-in side from a call-in side (step 6), and the phonecall charges at the time of talking over the telephone using the case where it talks over the telephone using the general telephone line, and the Internet are compared (step 7). When it is [phonecall charges] cheaper to use the Internet ($\alpha > \beta + \gamma$), the Internet communication link is chosen and it shifts to actuation of an Internet connectivity (step 8). When it is cheaper to use the general telephone line ($\alpha \leq \beta + \gamma$), it changes to voice mode and talks over the telephone as it is by the general telephone line (step 9).

[0021] Drawing 3 is a flow chart at the time of the call origination of the telephone with the Internet in the gestalt 1 of operation of this invention, and shows the procedure of performing the program of operation CPU1 is remembered to be by ROM2 at the time of call origination.

[0022] In the case of the business which ends for a short time (time amount which can talk over the telephone by the minimum phonecall charges) when an addresser is urgent, in drawing 3, push telephone is first set up for the carbon button in the input section 8. Next, a phase hand's telephone number is inputted from the same input section 8. If the telephone number is inputted (step 11), when urgent, it will check whether it is the business which ends for a short time (time amount which can talk over the telephone by the minimum phonecall charges) (step 12). If it checks that it is the business which ends in step 12 for a short time when urgent, the telephone number of the inputted phase hand will be sent out (step 13), and it will connect in voice mode using the general telephone line (step 14). On the other hand, it is not urgent, when it is also the last business which would end for a short time, a phase hand's telephone number is sent out (step 15), and it connects a call-in side in data communication mode using the general telephone line (step 16). If it connects a call-in side, by the case where drawing 2, and the case where described above, and only the general telephone line is used as explained and the Internet are used, phonecall charges will choose the cheaper one (step 17). In a circuit selection step, when use of the general telephone line is chosen, it changes to voice (step 18) mode (step 19). When use of the Internet is chosen in a circuit selection step (step 18), the data of the purport which uses the Internet are transmitted and it notifies to a call-in side (step 20). A circuit is cut once after that (step 21), a provider's telephone number is sent out, and it accesses to the Internet (step 22). If there is a response

by the side of a call in (step 23), it will go into the mode of a message (step 24).

[0023] Drawing 4 is an operation flow chart at the time of the call in of the telephone with the Internet in the gestalt 1 of operation of this invention, and shows the procedure of performing the program of operation CPU1 is remembered to be by ROM2 at the time of a call in.

[0024] In drawing 4, it checks whether the telephone received when checking the call in first (step 31) is voice, or it is data (step 32). If it checks that it is voice at step 32, it will change to voice communication mode and a message (step 40) will be started (step 41). In step 32, it checks that it is not voice but data communication, and if the demand of account data is received from a call origination side (step 33), the phonecall-charges data of unit time amount with the provider B of the Internet will be transmitted to a call origination side a call-in side (step 34). Next, if a demand of the purport which uses the Internet is received from a call origination side (step 35), a circuit will be cut once (step 36). It stands by until it sends out Provider's B telephone number, it accesses the Internet and it connects a call origination (step 37) side. A message will be started if a circuit is connected a call origination side (step 38) (step 39). If there is no demand of the purport which uses the Internet from a call origination side in step 35 and a call origination side changes to voice, it will change to voice mode and a message (step 40) will be started (step 41).

[0025] Drawing 5 and drawing 6 are the operation flow charts at the time of the notice of the purport which uses the Internet of the telephone with the Internet in the gestalt 1 of operation of this invention, and show the procedure of performing the program of operation CPU1 is remembered to be by ROM2.

[0026] In drawing 5, a circuit is chosen in a procedure as first shown in drawing 2, drawing 3, and drawing 4 at the time of call origination and a call in (step 51). When the general telephone line is chosen (step 52), LED starts a message, without making the light switch on (step 60). When use of the Internet is chosen (step 52), the purport which talks over the telephone by making LED turn on and using the Internet for a user (step 53) is notified. A circuit is cut once after that, a provider's (step 54) telephone number is sent out, and the Internet is accessed (step 55). If connected with a partner, a message will be started (step 56), a message is completed, if an on-hook is detected (step 57), LED will be switched off and a circuit (step 58) will be cut.

[0027] In drawing 6, a circuit is chosen in a procedure as first shown in drawing 2, drawing 3, and drawing 4 at the time of call origination and a call in (step 61). When the general telephone line is chosen (step 62), a message is started as it is (step 69). When use of the Internet is chosen (step 62), a user is notified of the purport which uses the Internet by the message like, such as "reaccessing the Internet", through an earphone (step 63). A circuit is cut once after that, a provider's (step 64) telephone number is sent out, and the Internet is accessed (step 65). If connected with a partner, a message will be started (step 66), a message is completed, and a circuit will be cut if an on-hook is detected (step 67) (step 68).

[0028] Drawing 7 is an operation flow chart at the time of the call sound output of the telephone with the Internet in the gestalt 1 of operation of this invention, and shows the procedure of performing the program of operation CPU1 is remembered to be by ROM2.

[0029] In drawing 7, a circuit is chosen in a procedure as first shown in drawing 2, drawing 3, and drawing 4 at the time of call origination and a call in (step 71). When the general telephone line is chosen (step 72), it changes to voice mode and the call sound by the side of a call in (step 79) is outputted (step 79), and a message will be started if the user by the side of a call in answers (step 80). When use of the Internet is chosen (step 72), a circuit is cut once, a provider's (step 73) telephone number is sent out, and the Internet is accessed (step 74). If connection with a partner is completed (step 75), it will check whether an earphone is on hook (step 76), and a message will be started if off-hook (step 81). If on hook, it will call, a sound will be outputted and a user will be notified of a call in (step 77) or the completion of connection. A message will be started if the user by the side of a call in answers (step 78).

[0030] In addition, although the example realized by telephone as a gestalt 1 of operation of this invention is indicated, this invention is not limited to telephone and can realize the function of this invention with a gestalt like the adapter connected to common telephone.

(Gestalt 2 of operation) The gestalt 2 of operation of this invention is explained hereafter, referring to a drawing. Drawing 8 is the hardware configuration Fig. of the telephone-exchange machine in the gestalt 2 of operation of this invention. In drawing 8, 21 is arithmetic and program control (CPU) which controls actuation of the whole telephone-exchange machine. 22 is the read only memory (ROM) which stored the program of operation which CPU1 performs. 23 is the read only memory (ROM) which stored the account data of a general circuit. 24 is the random access memory (RAM) for storing data temporarily. 25 is a modem which transmits and receives data through the communication line of a cable, and 26 is an interface circuitry (NCU) with a communication line. 27 is a telephone interface circuitry with telephone.

[0031] About the telephone-exchange machine constituted as mentioned above, the actuation is explained below. Drawing 9 is a flow chart at the time of the call origination of the telephone-exchange machine in the gestalt 2 of operation of this invention, and shows the procedure of performing the program of operation CPU21 is remembered to be by ROM22 at the time of call origination.

[0032] In drawing 9, first, in the case of the business which ends for a short time (time amount which can talk over the telephone by the minimum phonecall charges) when an addresser is urgent, in case the telephone number of the other party is dialed by telephone, '#' is inputted following the telephone number. An exchanger detects the sent-out telephone number in which the telephone connected to the telephone interface 27 carried out off-hook (step 91). It checks whether at this time, '#' is sent out following the telephone number (step 92).

[0033] In step 92, urgent or a phase hand's telephone number sent out from telephone when checking '#' which shows that it is short-time business is sent out (step 93), and it connects using the general telephone line (step 94). On the other hand, when '#' is not added, a phase hand's telephone number is sent out (step 95), and it connects a call-in side in data communication mode using the general telephone line (step 96). If it connects a call-in side, by the case where drawing 2, and the case where described above, and only the general telephone line is used as explained and the Internet are used, phonecall charges will choose the cheaper one (step 97). In a circuit selection step, when use of the general telephone line is chosen, it changes to voice (step 98) mode (step 99). When use of the Internet is chosen in a circuit selection step (step 98), the data of the purport which uses the Internet are transmitted and it notifies to a call-in side (step 100). A circuit is cut once after that (step 101), a provider's telephone number is sent out, and it accesses to the Internet (step 102). A message will be started if there is a notice of connection (step 103) (step 104).

[0034] Drawing 10 is an operation flow chart at the time of the call in of the telephone-exchange machine in the gestalt 2 of operation of this invention, and shows the procedure of performing the program of operation CPU21 is remembered to be by ROM22 at the time of a call in.

[0035] In drawing 10, if arrival of the mail is checked first (step 111), it will check whether the received telephone is voice or it is data (step 112). If it checks that it is voice at step 112, it will change to voice communication mode and the telephone of a destination side (step 121) will be called (step 122). A message will be started if the telephone by the side of a call in carries out off-hook (step 123). If it checks that it is not voice but data communication in step 112 and the demand of account data is received from a call origination side (step 113), the phonecall-charges data of unit time amount with the provider B of the Internet will be transmitted to a call origination side a call-in side (step 114). Next, if a demand of the purport which uses the Internet is received from a call origination side (step 115), a circuit will be cut once (step 116). It stands by until it sends out Provider's B telephone number, it accesses the Internet and it connects a call origination (step 117) side. If a circuit is connected a call origination side (step 118), the telephone by the side of a call in will be called (step 119), and a message will be started if telephone carries out off-hook (step 120). If there is no demand of the purport which uses the Internet from a call origination side in step 115 and a call origination side changes to voice, it will change to voice mode and the telephone by the side of a call in (step 121) will be called (step 122), and a message will be started if telephone carries out off-hook (step 123).

[0036] As mentioned above, by the gestalt of this operation, although high phonecall charges will start if only the general telephone line is used when the cheap circuit of phonecall charges can be chosen from

the general telephone line and the Internet, for example, it telephones, it will end by using the Internet in the sum total of the phonecall charges to each provider by the side of call origination and a call in. Moreover, in order that a telephone switchboard may make connection by the Internet automatically, a user can use it easily, without worrying about connection. Since it calls after connecting a circuit, and a sound is outputted and the completion of connection and a call in are notified, a user can talk over the telephone like an ordinary telephone using the Internet, without carrying out special actuation.

[0037]

[Effect of the Invention] As mentioned above, this inventions are data, the telephone terminal unit which can communicate audio, and a telephone switchboard, and when telephoning, they can talk over the telephone by phonecall charges choosing the cheaper one by the case where only the conventional general telephone line is used, and the case where the Internet is used.

[0038] Moreover, when carrying out call origination, or when carrying out a call in, in order that a telephone terminal unit and a telephone switchboard may make connection of the Internet automatically, a user can use it easily, without worrying about connection. It writes as a configuration which calls after connecting a circuit furthermore, and outputs and calls a sound, and even if connecting with a partner takes time amount, a user does not have to do waiting for connection, with an earphone having.

[0039] Moreover, while using the Internet, a user can check that by lighting of LED etc.

[Translation done.]